

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

A20CE Revision 19 Cessna 177RG March 31, 2003

TYPE CERTIFICATE DATA SHEET NO. A20CE

This data sheet which is part of Type Certificate No. A20CE prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder Cessna Aircraft Company
P O Box 7704
Wichita Kansas 67277

I. Model 177RG, Cardinal RG, 4 PCLM (Normal Category), approved August 11, 1970

Engine	Lycoming IO-360-A1B6 or IO-360-A1B6D
*Fuel	100/130 minimum grade aviation gasoline (S/N 177RG0001 through 177RG1051) 100LL/100 aviation grade gasoline (S/N 177RG1052 and up)
*Engine limits	For all operations, 2700 rpm (200 hp)
Propeller and propeller limits	<ol style="list-style-type: none"> 1. (a) McCauley B2D34C206/78TA Diameter: not over 78 in., not under 76.5 in. Pitch settings at 30 in. sta.: Low 12.9°, high 27.5° (b) Cessna spinner 0752637 (c) McCauley hydraulic governor C290D2/T11, C290D3/T11 (IO-360-A1B6) or C290D2/T12, C290D3/T12 (IO-360-A1B6 only) (d) Woodward hydraulic governor C210460 (IO-360-A1B6 only) 2. (a) McCauley B2D34C207/78TCA Diameter: not over 78 in., not under 76.5 in. Pitch settings at 30 in. sta.: Low 12.9°, high 27.5° (b) Cessna spinner 0752637 (c) McCauley hydraulic governor C290D2/T11, C290D3/T11 (IO-360-A1B6) or C290D2/T12, C290D3/T12 (IO-360-A1B6D) (d) Woodward hydraulic governor C210460 (IO-360-A1B6 only)
*Airspeed limits (CAS)	177RG0001 through 177RG0787 (except 177RG0419) Never exceed 195 mph (169 knots) Maximum structural cruising 160 mph (139 knots) Maneuvering 130 mph (113 knots) Flaps extended 110 mph (96 knots) Landing gear operating speed 140 mph (122 knots) Landing gear extended speed 140 mph (122 knots)
(IAS) (See Note 3 on Use of IAS)	177RG0419, 177RG0788 and up Never exceed 174 knots Maximum structural cruising 142 knots Maneuvering 113 knots Flaps extended 95 knots Landing gear operating speed 125 knots Landing gear extended speed 125 knots

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I. Model 177RG, Cardinal RG, 4 PCLM (Normal Category) (cont'd)

*C.G. range (landing gear extended)	(+101.0) to (+114.7) at 2200 lbs. or less (+105.8) to (+114.7) at 2800 lbs. Straight line variation between points given Moment change due to retracting landing gear (+2776 in.-lb.)			
Empty weight C.G. range	None			
*Maximum weight	Normal category 2800 lbs.			
Number of seats	4 (2 at sta. 90.0 to 97.0, 2 at sta. 134)			
Maximum baggage	120 lb. (+154.5 on and fwd. of wheel well, +178.5 aft of wheel well)			
Fuel capacity	51 gal. (two 25.5 gal. fuel bays in wing at sta. +112; 50 gal. usable) <i>See Note 1 for data on unusable fuel (1971 and 1972 only).</i> 61 gal. (two 30.5 gal. fuel bags in wing at sta. +112; 60 gal. usable) <i>See Note 1 for data on unusable fuel (1973 and up).</i>			
Oil capacity	8 qt. (+44) (2 qt. unusable); 9 qt. (+45) with oil filter (3 qt. unusable - (2) qt. in sump plus (1) qt. in oil filter) <i>See Note 1 for data on undrainable oil.</i>			
Control surface movements	Wing flaps		30° + 2° -0°	
	Aileron		Up 20° ± 2°	Down 15° ± 2°
	Stabilator		Up 20° ± 1°	Down 5° ± 1°
	Stabilator tab		(177RG0001 through 177RG0787, except 177RG0419)	
			Up 5° ± 1°	Down 13° ± 1°
			(177RG0419, 177RG0788 and up)	
Serial numbers eligible	Rudder (measured perpendicular to hinge line)		Up 5° + 1°, -0°	Down 13° ± 1°
			Right 24° ± 1°	Left 24° ± 1°
Serial numbers eligible	177RG0001 through 177RG0212			(1971 Model)
	177RG0213 through 177RG0282			(1972 Model)
	177RG0283 through 177RG0432 except 177RG0419			(1973 Model)
	177RG0433 through 177RG0592			(1974 Model)
	177RG0593 through 177RG0787			(1975 Model)
	177RG0788 through 177RG1051			(1976 Model)
	177RG1052 through 177RG1266			(1977 Model)
	177RG0419, 177RG1267 thru 177RG1366			(1978 Model)

Data Pertinent to all Models

Datum	54.0 in. forward of front face of lower portion of firewall
Leveling means	Jig located nutplates and screws at sta. +213.0 and sta. +238.0 on left of tail cone.
Certification basis	Part 23 of the Federal Aviation Regulations effective February 1, 1965, as amended by 23-1 through 23-6. Application for type certificate dated September 9, 1969. Type Certificate No. A20CE issued August 11, 1970, obtained by the manufacturer under delegation option procedures.

Certification basis (cont'd)	<u>Equivalent Safety Items</u>	177RG0419, 177RG0788 and on
	Airspeed indicator	FAR 23.1545 (<i>see Note 3 on use of IAS</i>)
	Airspeed limitations	FAR 23.1583(a)(1)
Production basis	Production Certificate No. 4. Delegation Option Manufacturer No. CE-1 authorized to issue airworthiness certificates under delegation option provisions of Part 21 of the Federal Aviation Regulations.	
Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following item of equipment is required:	
	1. Stall warning indicator, Cessna Dwg. 2070002	

NOTE 1. Current weight and balance report including list of equipment included in certificated empty weight, and loading instructions when necessary, must be provided for each aircraft at the time of original certification.

Serial No. 177RG0001 through 177RG0787 except 177RG0419

The certificated empty weight and corresponding center of gravity locations must include undrainable oil of 0.0 lb. at 44.0 and unusable fuel of 6 lb. at 100.0.

Serial No. 177RG0419, 177RG0788 and on

The certificated empty weight and corresponding center of gravity locations must include oil of 17 lbs. at 45.0 and unusable fuel of 6 lbs. at 100.0.

NOTE 2. The following placards must be displayed as indicated:

A. Applicable to Model 177RG

(1) In full view of the pilot:

a. 177RG0001 through 177RG0787 (except 177RG0419)

"This airplane must be operated as a normal category airplane in compliance with the operating limitations as stated in the form of placards, markings, and manuals.

<u>Maximums</u>		
Maneuvering speed		130 mph-CAS (113 knots)
Gear extension speed		140 mph-CAS (122 knots)
Gross weight		2800 lb.
Flight load factor	Flaps Up	+3.8, -1.52
	Flaps down	+2.0

No acrobatic maneuvers, including spins, approved. Altitude loss in a stall recovery - 190 ft.
Flight into known icing conditions prohibited. This airplane is certified for the following flight operations as of date of original airworthiness certificate:

IFR - VFR - DAY - NIGHT" (as applicable)

b. 177RG0788 through 177RG1311

"This airplane must be operated as a normal category airplane in compliance with the operating limitations as stated in the form of placards, markings, and manuals.

<u>Maximums</u>		
Maneuvering speed (IAS)		113 knots
Gear extension speed (IAS)		125 knots
Gross weight		2800 lbs.
Flight load factor	Flaps Up	+3.8, -1.52
	Flaps down	+2.0

- NOTE 2. A. (1) b. No acrobatic maneuvers, including spins, approved. Altitude loss in a stall recovery - 190 ft. Flight into known icing conditions prohibited. This airplane is certified for the following flight operations as of date of original airworthiness certificate.

DAY - NIGHT - VFR - IFR" (as applicable)

- c. 177RG0419, 177RG1312 and on
 "This airplane must be operated as a normal category airplane in compliance with the operating limitations as stated in the form of placards, markings, and manuals.

	<u>Maximums</u>	
Gross weight		2800 lbs.
Flight load factor	Flaps Up	+3.8, -1.52
	Flaps Down	+2.0

No acrobatic maneuvers, including spins, approved. Altitude loss in a stall recovery - 190 ft. Flight into known icing conditions prohibited. This airplane is certified for the following flight operations as of date of original airworthiness certificate:

DAY - NIGHT - VFR - IFR" (as applicable)

- d. Near Airspeed Indicator:
 "Max. Speed - KIAS
 Maneuver 113
 Gear Oper 125
 Gear Down 125"

- (2) On control lock: "Control lock - remove before starting engine."

- (3) By fuel valve (at appropriate locations):

1971 and 1972 Models

- a. "On - 50 gal."
 b. "OFF"

1973 Model and On

- a. "BOTH - 60 gal."
 "LEFT - 30 gal."
 "RIGHT - 30 gal."
 "Use both for takeoff and landing."

"When switching from a dry tank, turn auxiliary pump on and use full rich mixture until power is restored."

- (4) Aft of fuel tank cap: "Service this airplane with 100/130 grade aviation gasoline."
 (1971/1972 models) "Total capacity 25.5 gal." "Capacity to line of holes inside filler neck, 22.0 gal."
 (1973 thru 1977 models) "Service this airplane with 100/130 grade aviation gasoline."
 "Total capacity 30.5 gal." "Capacity to line of holes inside filler neck, 22.0 gal."
 (1978 model and on) "Service this airplane with 100LL/100 aviation grade gasoline."
 "Total capacity 30.5 gal." "Capacity to line of holes inside filler neck, 22.0 gal."

- (5) In baggage compartment:

a. Without hat shelf in baggage wall

"120 lb. maximum baggage"
 "For additional loading instructions see weight and balance data."

b. With hat shelf in baggage wall

"120 lb. maximum baggage including 12 lb. maximum in baggage wall hat shelf."
 "For additional loading instructions see weight and balance data."

NOTE 2.

- A. (6) Next to door ventilation windows:
- 177RG0001 through 177RG0787 (except 177RG0419)
"Do not open windows above 120 mph or when using alternate static source."
 - 177RG0419, 177RG0788 and up.
"Do not open windows above 105 knots or when using alternate static source."
- (7) On airspeed indicator:
- 177RG0001 through 177RG0787 (except 177RG0419)

"Radial red line	195 mph (CAS)
Yellow arc	169-195 mph (CAS)
Green arc	70-169 mph (CAS)
White arc	60-110 mph (CAS)"
 - 177RG0419, 177RG0788 and up.

"Radial red line	174 knots (IAS)
Yellow arc	142-174 knots (IAS)
Green arc	59-142 knots (IAS)
White arc	50- 95 knots (IAS)"
- (8) On oil temperature gauge:
- Red line at 245° F.
 - Green arc 100° to 245° F."
- (9) On oil temperature gauge:
- "Red line at 25 psi
 - Green arc 60 psi to 90 psi
 - Red line at 100 psi"
- (10) Tachometer: "Normal operating - 2100 - 2500 rpm (green arc)
Caution - 1400 - 1750 rpm (yellow arc)
Maximum allowable - 2700 rpm (red line)"
- (11) On fuel flow gauge:
- "Red line 10 psi
 - Green arc 6 to 13 GPH."
- (12) Near fuel flow gauge:
- "Max. power Alt. S.L. 4000 8000 12000
 - Mixture GPH 17 15 13 10"
- (13) On flap control and indicator:
- 177RG0001 through 177RG0787 (except 177RG0419)

"0° to 10°	(Blue color code and 150 mph callout; also, mechanical detent at 10°).
10° - 20° - 30°	(Indices at these positions with white color code and 110 mph callout; also, mechanical detent at 20°)."
 - 177RG0419, 177RG0788 and up.

"0° to 10°	(Blue color code and 130 knots callout; also, mechanical detent at 10°).
10° - 20° - 30°	(Indices at these positions with white color code and 95 knots callout; also, mechanical detent at 20°)."
- (14) Proximity of tachometer:
- "Avoid continuous operation between 1400-1750 rpm with less than 10" manifold pressure."
- (15) On cylinder head temperature gauge:
- "Red line at 475° F.
 - Green arc 200° to 475° F."

- NOTE 2. A. (16) On instrument panel: (1971 model only)
a. "Do not turn off alternator in flight except in emergency."

- (17) On emergency landing gear pump handle cover:

On 1971 through 1973 Models

"EMERGENCY HAND PUMP
PULL UP

TO EXTEND GEAR MANUALLY:

- a. Place gear lever in down position.
- b. Extend pump handle.
- c. Pump approximately 40 pressure strokes
- d. Stop when resistance becomes heavy.
- e. Verify gear is down by observing green light.

IMPORTANT

To permit gear retraction after hand pump use pull relief valve knob for a minimum period of five seconds. Then move gear lever to the UP position."

On 1974 models and on

"EMERGENCY HAND PUMP
PULL UP

TO EXTEND GEAR MANUALLY:

- a. Pull out landing gear circuit breaker.
- b. Place gear lever in DOWN position.
- c. Extend pump handle.
- d. Pump approximately 40 pressure strokes.
- e. Stop when resistance becomes heavy.
- f. Verify gear is down by observing green light.

IMPORTANT

To permit normal gear retraction after hand pump use, push in landing gear circuit breaker."

- (18) On manifold pressure gauge:
a. "15 to 25 in. Hg. (green arc)."

- NOTE 3. The marking of the airspeed indicator in IAS provides an equivalent level of safety to FAR 23.1545 when approved airspeed calibration data presented in Section V of the Pilot's Operating Handbooks listed below is available to the pilot:

177RG, Cessna P/N D1060-13 (177RG0788 through 177RG1051)

177RG, Cessna P/N D1085-13 (177RG1052 through 177RG1266)

177RG, Cessna P/N D1112-13 (177RG0419, 177RG1267 through 177RG1366)

- NOTE 4. The cylinder head probe location for the Model 177RG is No. 3 cylinder.

- NOTE 5. 14-volt electrical system
(177RG serials through S/N 177RG1266 except 177RG0419)

28-volt electrical system
(177RG serials 177RG0419 and 177RG1267 and up)

In addition to the placards specified above, the prescribed operating limitations indicated by an asterisk (*) under Section I of this data sheet must also be displayed by permanent markings.

- NOTE 6.

<p>"WARNING: Use of alcohol-based fuels can cause serious performance degradation and fuel system component damage, and is therefore prohibited on Cessna airplanes</p>

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